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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,721	12/20/2001	Donald L. Yates	M4065.0489/P489	2293
24998	7590	11/17/2003	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			TSAI, H JEY	
2101 L STREET NW			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20037-1526			2812	

DATE MAILED: 11/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/022,721	YATES ET AL.	
	Examiner	Art Unit	
	H.Jey Tsai	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 22-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

Election/Restriction

Applicant's election without traverse of claims 1-21 is acknowledged.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 16 recites the limitation of "said layers" in line 7 and line 4, respectively. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang 6,110,648, cited by applicant, in view of Yunogami et al. 6,326,218.

The reference(s) teach the features :

Jang discloses a method of manufacturing a ultra scale integrated chip in the semiconductor substrate, which includes :

forming an insulating layer (120a, 120b, silicon oxide or silicon nitride or polymer) over a substrate; see fig. 3c+ and col. 5, lines 20+,

forming a trench 150 in said insulating layer 120a, 120b,
lining said trench 150 with a first barrier layer (160, Ta, TiN, 150-300 angstroms) to a first conductive material;
forming said first conductive layer 170 in said trench;
planarizing an upper surface with RIE to obtain a smoother surface or CMP to obtain a rougher surface; col. 6, lines 55+,
forming a layer of a second conductive material (165, TiN, WN); and
removing an upper portion of said second conductive layer 165 to flatten an upper surface of said second conductive layer 165 while leaving a lower portion of said second conductive layer 165 intact over said first conductive layer, fig. 3f.

The difference between the reference(s) and the claims are as follows: Jang teaches manufacturing an ultra scale integrated chip in the semiconductor substrate. Jang does not teaches that a memory device is an ultra scale integrated chip in the semiconductor substrate and using Ti or TiN as first conductive material. However, Yunogami et al. teaches a memory device is an ultra scale integrated chip in the semiconductor substrate (col. 1-2) and using Ti and TiN as a first conductive material (BL) in fig. 7, col. 21, lines 20+.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Jeng's process in memory device and using Ti or TiN as first conductive material as suggested by Yunogami et al. because titanium lower the resistivity between the interconnect and the silicon junction so that increases the speed of a memory device.

Any inquiry of a general nature or clerical matters or relating to the status of this application or proceeding should be directed to the Group customer service whose telephone number is (703) 306-3329 and Fax number (703) 872-9306. Group receptionist telephone number 703-308-0956.

Application/Control Number: 10/022,721
Art Unit: 2812

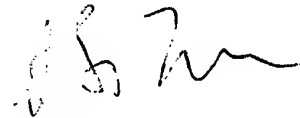
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. Jey Tsai whose telephone number is (703) 308-1374. The examiner can normally be reached on from 7:00 Am to 4:00 Pm., Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on (703) 308-3325. The fax phone number for this Group is (703) 872-9306.

hjt

11/7/03

A handwritten signature in black ink, appearing to read 'H. Jey Tsai', with a stylized flourish at the end.

H. Jey Tsai
Primary Examiner
Patent Examining Group 2800